

BENCHMARKS

VOLUME 6 NUMBER 6

NORTH TEXAS STATE UNIVERSITY

JUNE 1985

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NEW POLICIES, PROCEDURES, AND OTHER IMPORTANT STUFF

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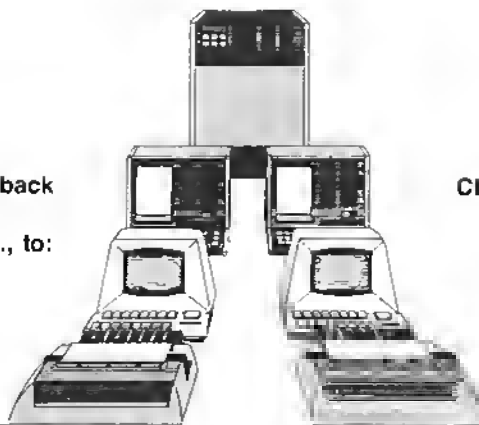
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BENCHMARKS Reader/User feedback is encouraged.

Send all letters, suggestions, etc., to:
North Texas State University
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Denton, Texas 76203



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SERVICES AVAILABLE TO USERS OF THE NTSU COMPUTING FACILITIES

The NTSU Computing Center is located in the Information Sciences Building, Room 110. Telephone: (817) 565-2324. HELP DESK phone: 565-4050.

INFORMATION AND ID CODES - Carolyn Goodman

BENCHMARKS QUESTIONS/CONTRIBUTIONS, ETC. - Claudia Lynch

STATISTICAL/RESEARCH SUPPORT - George Morrow, Scott Barber, Claudia Lynch, Dave Moha, Pann Sittiwong

STUDENT PROGRAMMING PROBLEMS - CSCI Department, Room 542A, GAB

BCIS Department, Room 152, BA

JCL PROBLEMS - Help Desk

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DATA ENTRY & KEYPUNCH - Betty Grise

TEST SCORING & ANALYSIS - Betty Grise

DISK SPACE PROBLEMS - Carolyn Goodman

PASSWORD AND OPERATING SYSTEM PROBLEMS - Help Desk

ADMINISTRATIVE APPLICATIONS - Coy Hoggard

COMMUNICATION/TERMINAL PROBLEMS - Help Desk

PRINTOUT RETRIEVAL - RJE Operators

DIALING UP NTSU COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300/1200 BAUD: (817) 565 - 3300, 565-3499

300 BAUD: D/FW METRO 429 - 6006

The numbers that will accept either 300 or 1200 baud communications have an autobaud feature that requires the user to hit the 'RETURN' key repeatedly until the receiving modem can determine the appropriate baud rate. The METRO telephone number is for 300 baud communications only. After a communications link has been successfully established, the user will receive the # prompt. At this point, it will be necessary to issue the appropriate CALL command to connect with a computer.

CALL 8040 will connect with the NAS/8043 (for MUSIC access)
8050
8060

CALL 3270 will connect with the NAS/8043 through the 3270
3280 protocol converter

CALL A780 will connect with VAX system A

CALL B780 will connect with VAX system B

CALL 2000 will connect with the HP-2000 computer

HOURS FOR NTSU COMPUTER ACCESS AREAS

SUMMER SESSIONS: June 5 - August 16, 1985

<u>Days</u>	<u>Times</u>	<u>Location</u>
Sunday	2:10 p.m. 2:10 p.m. Noon-Midnight	Room 550C, GAB* ISB 110 Terminal Area Computing Center RJE
Saturday, Sunday	12:15 p.m.-Midnight	College of Business
Monday-Thursday	8 a.m.-11 p.m. 7:30 a.m.-10 p.m. 8:15 a.m.-Midnight	Room 550C, GAB* ISB 110 Terminal Area College of Business
Monday-Friday	7:30 a.m.-Open 24 hrs/day	Computing Center RJE
Friday	8 a.m.-8 p.m. 7:30 a.m.-6 p.m. 8:15 a.m.-8 p.m.	Room 550C, GAB* ISB 110 Terminal Area College of Business
Saturday	Noon-5 p.m. 8:30 a.m.-7 p.m. CLOSE Midnight	Room 550C, GAB* ISB 110 Terminal Area Computing Center RJE

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* NEW POLICIES,
* PROCEDURES,
* AND OTHER
* IMPORTANT
* STUFF
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Computing Center Short Courses, Summer II

The Computing Center is offering a series of short courses for Summer Session II. These courses will be held in Room 110 of the Science and Technology Library (ISB) unless otherwise noted. Following are the dates and times for each course. Please pre-register to attend. Only 20 people will be admitted per section. Courses marked with * require knowledge of the MUSIC Context Editor. THE COMPUTING CENTER RESERVES THE RIGHT TO CANCEL COURSES WITH LESS THAN 5 PEOPLE PRE-REGISTERED.

1. Three separate 2-hour introductory sessions on the MUSIC interactive operating system, using the 3270 Protocol Converter to do FULL-SCREEN EDITING on MUSIC.

Monday, July 22	: 10 a.m. - Noon	Instructor: Janice Green
Tuesday, July 23	: 10 a.m. - Noon	Instructor: Janice Green
Wednesday, July 24	: 6 - 8 p.m.	Instructor: Janice Green
2. A 2-hour introductory session on SPSS-X.*

Tuesday, July 23	: 10 a.m. - Noon	Instructor: Scott Barber
------------------	------------------	--------------------------
3. A 2-hour introductory session on SAS.*

Thursday, July 25	: 3 - 5 p.m.	Instructor: Dave Malta
-------------------	--------------	------------------------
4. A 2-hour introductory session on Waterloo/SCRIPT.*

Monday, July 22	: 3 - 5 p.m.	Instructor: Claudia Lynch
-----------------	--------------	---------------------------
5. A 2-hour session on Job Control Language (JCL) - To be held in the Academic Computing Services Conference Room ISB 123 (in the Computing Center Office Area).

Tuesday, July 23	: 10 a.m. - Noon	Instructor: George Morrow
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6. A 3-hour session introducing VAX Utilities and Commands - To be held in the Academic Computing Services Conference Room ISB 123 (in the Computing Center Office Area) for the first two hours.

Wednesday, July 24	: 9 a.m. - Noon	Instructor: Ron Brashear
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A registration form for these short courses is included at the end of this issue.

NTSU Cable System

You may have noticed television monitors mounted on walls in strategic places throughout the campus. These are connected to the NTSU cable system, which carries a wide variety of information of interest to the academic community. While the channel designations are subject to change, the following list represents the current configuration of the cable system.

- Channel 12 — Cox Cable. Currently broadcasts Cable News Network (CNN), unless a special program is requested.
- Channel 10 — NTSU Computer System Status Monitor (SSM). Displays the current status of the NAS, VAX and HP computer systems supported by the Computing Center.
- Channel 9 — NT Daily. Broadcast originates from the NTSU Journalism Department.
- Channel 8 — Tager microwave channel. Carries broadcasts to and from NTSU in other links in the Tager network. Special broadcasts to and from classrooms, etcetera can be arranged by contacting the Media Library (565-2484).

Submit Command Available on CMS

By Steve Glick, Technical Support Staff

A new command is available on CMS which will facilitate submission of jobs to the MVS batch operating system. The advantage of using the new command (SUBMIT) over the older method (TO) is that /INCLUDE cards will be processed, much as they are on the MUSIC system.

To use SUBMIT on CMS, type SUBMIT FN FT FM, where FN is the file name, FT is the file type, and FM is the optional file mode. A default file mode of 'A' is assumed. The file specified in the SUBMIT command may consist of card images which are to be sent as is to MVS, or may specify /INCLUDE FN FT FM, where FN, FT and FM are described above. The SUBMIT processor will substitute the file specified in FN FT FM for the actual /INCLUDE card.

USAGE NOTES

1. Only the first 4 characters of /INCLUDE must be typed, and they must be in upper case. The FN FT and FM may appear anywhere on the /INCLUDE card; there are no spacing restrictions.
2. Files of mixed record formats (fixed or variable) are allowed; a maximum of 80 bytes will be punched to MVS in any case.
3. As many /INCLUDE cards may be used as necessary, but /INCLUDE cards are not allowed in /INCLUDEd files (i.e., nesting of /INCLUDEs is not allowed).

EXAMPLE

Given a file called MYSAS JOB A which contains the following:

```
//INCLUDE JOBCARD SETUP
// EXEC SAS
DATA;
.
SAS statements ... ;
.
```

And a file called JOBCARD SETUP A which contains the following:

```
//LA00SAS1 JOB (LA00,10,1),'My Name',PASSWORD=NONYA
```

The CMS command SUBMIT MYSAS JOB would submit the entire job stream to MVS.

SHAZAM Upgraded to Version 4.6

Version 4.6 of SHAZAM has been installed on the NAS/8043. This version is a maintenance release, and contains no significant revisions or additions. The following job stream may be used to print a copy of the SHAZAM manual (also available from MENU on MUSIC).

```
// ..... Valid JOB Card .....
// EXEC STORDATA
//SYSUT2 DD SYSOUT=(A,TN01),DCB=RECFM=FBA
//SYSUT1 DD UNIT=TAPE9,LABEL=(9,SL),VOL=SER=104328,DISP=OLD,
//          DSN=SHAZAM.LIST
```

```
*****
*
*          MICROCOMPUTERS          *
*
* *****
```

MicroBits: Micro News You Can Use

By Mike Flanery, Manager of the Computer Science Department Microcomputer Maintenance Shop (MMS)

ADDENDUM

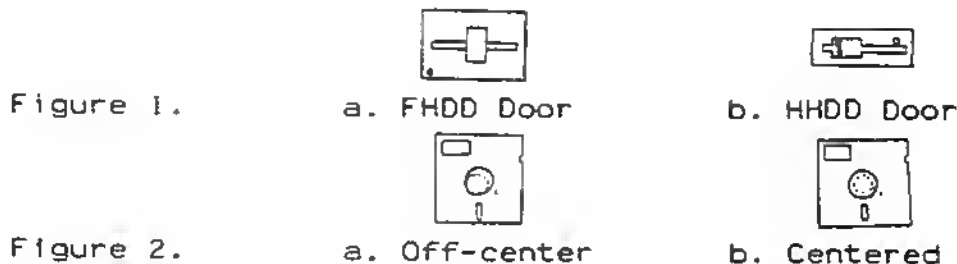
Last time in "MicroBits," we neglected to include Apples in the list of machines with NTSU inventory numbers that we service. If you have an Apple II, II+, or IIfx, please call us with any problems.

OF DISK DRIVES AND FLOPPY DISKS

The majority of the service requests that the MMS receives is for disk drive problems. This is due to two factors. First, the disk drive is a precision electro-mechanical device that must be maintained within distinct physical tolerances for proper performance. Secondly, the disk drive requires physical manipulation from the user in the form of flexible (floppy) diskettes. The latter is a temporary means, at best, of storing information.

The two different types of drives presently being used in TPCs can be differentiated by the method of opening and closing the door. The older model, or full-height disk drive (FHDD) has a door-latch one opens by pulling (Figure 1a). The more recent model, or half-height disk drive (HHDD) has a lever which is twisted to open and shut the door mechanism (Figure 1b). Each of these drives has their own peculiar problems. The FHDD has a tight spring in the door mechanism which often causes the door to slam open. Repeated door slamming can result in permanent damage to the drive and a catastrophic loss of data from a diskette.

The HHDD has two annoying idiosyncrasies that do not cause irretrievable data loss, but do contribute to user anxiety. Some HHDDs have a tendency to wail quite loudly at certain times. We have observed this problem all over campus and have only heard these drives wail with Control Data brand diskettes. Not all HHDDs do this and there is nothing "wrong" with those that do. There is nothing about these drives that needs to be "fixed," and the best solution is to use another brand of diskettes. Another problem with HHDDs is that some appear to be sensitive to the degree of eccentricity of the physical diskette within the floppy disk sleeve. If the diskette is off-center (Figure 2a), then some HHDDs will have difficulty reading them. This can be somewhat disconcerting when one inserts a known good diskette and gets an error message. When this happens, remove the diskette from the drive, center the diskette within the sleeve (Figure 2b), and reinsert.



Germane to the topic of disk drives is that of floppy disks (or diskettes). The diskettes store data magnetically and the data is therefore somewhat ephemeral. Listed below are a few guidelines for using floppy disks with a minimum of data loss and frustration.

1. Keep diskettes away from magnets (paper clip holders, for example); telephones; and out of contact with any metallic objects.
2. Never touch the surface of the diskette.
3. If at all possible, avoid Control Data diskettes. There are many reasons for this that I don't wish to go into here. Please contact me if you want any more information about brands of diskettes.
4. BACKUP all diskettes !!! This cannot be emphasized enough. If you have a data diskette or two that you use frequently (a Wordstar data diskette, for example), back it up *daily*. That is, at the end of the day, simply make a copy of the diskette (using the MS-DOS command DISKCOPY) and store it somewhere safe.
5. Always store the diskette in the jacket when not in use.

Even Your Computer Needs a Little Micro Rx at Times

By J. Hansgate, State University of New York (SUNY) at Buffalo Computing Center

Editor's Note: The following article is taken from INTERFACE, the State University of New York at Buffalo Computing Center newsletter, April and May 1985 issues. Sandy Franklin, the Office Automation Specialist here at NTSU, reviewed this article and will be reviewing many more of this type in the future. The ones she feels are pertinent to our users here at NTSU will be reprinted for your benefit; provided, of course, that permission is granted from the original source.

The average microcomputer is an intemperate glutton for monotonous drudgery. It shirks no reasonable assignment, and purrs through its chores with lightning speed. Idyllic? Not always. However, the occasional performance tantrum can quite often be traced to a familiar culprit, neglect.

Like most such devices, microcomputer systems must be accorded their share of TLC. The following describes some problems that can (and probably will) arise, and some suggestions for preventive care.

Electrical disturbances appear in several forms, all of which can damage CPU circuitry and/or result in lost data.

- **Power surges.** Installing a surge suppresser at the wall power outlet is a reasonable (\$100-\$200) solution.
- **Power-line "noise".** This consists of unwanted electrical signals, usually originating from other electrical equipment. A line filter, often included in surge suppressers, should eliminate the problem.
- **Power loss.** One safeguard is to acquire an uninterruptable power supply (UPS). This is an expensive (\$500-\$2000) option; a more cost effective alternative is adherence to normal data backup procedures.

• *Static electricity.* Most of us are familiar with this phenomenon. It can be more damaging than is generally suspected. Anti-static sprays (work surfaces only), grounded mats (table-top or floor), electronic suppressers (Stat Kleer) and room humidifiers are among ways of dealing with this nuisance. Removing static-prone carpeting and avoiding insulating-type (rubber soled) shoes will further reduce the likelihood of static disturbances.

• *Electromagnetism.* This anomaly is generated by electrical devices, and is present in nearby metal objects. The best remedy is to keep as many of these things as possible out of the proximity of your computer.

Contamination damage usually originates from airborne particles or foreign materials transferred to sensitive mechanical parts. These pollutants can damage diskettes and tape cartridges, induce abnormal wear, and incur component malfunctions.

• Smoking and dusty environments (chalkboard use) can pose problems. Avoidance is a good first step. Air cleaners, dust covers, storage containers, and work-area cubicles will also help control the problem. Above all, follow manufacturer instructions, e.g., diskette care.

• No matter what, dirt will accumulate. Periodic cleaning of such parts as filters, CRT screens, and printer platens is necessary. Use only recommended cleaning agents (sometimes, just warm water), or sensitive surfaces can be damaged. Debris can also be removed from inside of system components (if not sealed) with small vacuum devices or by hand. Care in handling electronic components is always a prerequisite. An alternative to "do-it-yourself" maintenance is professional care from your dealer.

Temperature related problems arise when components are exposed to temperature conditions outside of prescribed ranges; 50 to 100 degrees is generally acceptable. If this factor is ignored, damage and/or erratic performance will likely result.

• Excessive heat can be dissipated through use of auxiliary fans sold for this purpose. Shutting the computer off intermittently or completely during hot stints may be the wisest move.

• Cold can also be a problem. Use of equipment and accessories at below acceptable temperature levels is particularly bad for magnetic storage media. Avoid the condition.

Wear and tear problems manifest themselves in a number of ways. Usually, some apparatus begins operating suspiciously or quits completely.

• Cultivate the habit of checking and cleaning things at regular intervals.

• If something isn't functioning properly (stuck key) or sounds "off" (disk drive or printer), look into it.

• Look for signs of wear that might signal an impending problem.

• Don't mishandle equipment. The computer and its peripherals are generally quite durable, but unnecessary jarring or rough usage can cause damage and premature failures.

• Thoroughly learn and follow manufacturer operating and maintenance instructions. If diagnostic checks are provided, perform them periodically.

• The key to long service is trouble prevention. Some problems may be subtle and require professional attention. Therefore, a maintenance contract may be a good idea.

In my experience most microcomputer systems have a high tolerance for some degree of indifferent treatment. However, running the risk can be costly. Whether the equipment is personally owned or used in connection with employment responsibilities, keep it in running order. Circumstances may differ from home to employer's workplace, but the above listing and points offer some very pertinent suggestions in either eventuality.

Office Automation News: General Office and Computer Security

By Sandy Franklin, Office Automation Specialist

The following information comes to us from Ms. Nancy Bilyeu of the Criminal Investigation Division of the NTSU Police department. It is part of a soon-to-be-released report on the security of campus computer equipment.

As the inventory of computers increases on campus, so does the problem of preventing computer thefts. Losses can be prevented if the proper steps are followed - a positive approach must be taken.

The secret to fighting computer theft is to eliminate the probability of loss through deterrents. This can be done by displaying a high degree of security consciousness. The potential thief must see and feel the presence of security, forcing them to seek a different location and target. This degree of security can be displayed in several ways, but first the university community must be educated in what security measures are available to them. The second step in the process is to encourage university administrators to purchase, and insure the continued use of, recommended security equipment.

The use of the following measures will demonstrate a high degree of security:

1. *Operation identification* involves the simple engraving of one's property with an identification number. In the case of state property, the decal number would be used. Engraving can be done with an electric tool (durable objects) or with a stylus pen (fragile objects).
2. *Balting Down Computers* and related equipment is strongly recommended because a thief will be unable to carry it away.
3. *Lacking Office Doors*, both the outside entry and suite rooms.
4. *Neighborhood Watch* for the office. Office mates look out for each other, and increase their awareness of general activity in the area by:
 - A. Reporting suspicious persons.
 - B. Asking a stranger in the area, "Hi, can I help you, you look lost?", then analyzing the response.
 - C. Reporting stolen property regardless of how small the item is.
 - D. Actually becoming a pair of eyes and ears for the police. 10 emergency phones and regular office phones can be used for such a purpose.

Security Equipment Computer owners are urged to use some sort of anchoring device to prevent swift removal of the PC's. Such devices include:

1. Anchorpad - either bolting or adhesive variety. Attaches to the computer housing and then to the secured work surface. Key access allows removal of the computer from the anchorpad surface. A variety of sizes are available for different equipment.
2. "Prague cable" - locking cable device which bolts into the computer housing and the work surface. Removal is very time consuming and requires special tools. Cable must be a recommended brand of sufficient strength to resist cutting.
3. Electronic alarms - attach to the computer equipment. Emit an ear-piercing alarm if removed without key access control."

We look forward to receiving the final report from the NTSU Police complete with cost figures, and brand names. We were also sent a memo regarding General Office Security. Several points bear repeating:

1. Do not leave the reception area unattended. If you must leave the office unattended, lock the door during the absence. When working alone or after normal business hours, lock the office door.
2. Report all suspicious persons and activities to the proper authorities (managers, building security, police). Require all servicemen to show proper identification (uniforms alone should not be considered proper identification). Do not allow company property to be removed from the office without authorization by management.

Company keys should be kept separate from personal keys. Company keys should be safeguarded at all times.

4. Company property should be marked with a police number for easy identification; model and serial numbers, as well as thorough descriptions, should also be noted.

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*   O P E R A T I O N S   *
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Disk Backup Schedules

Backup Schedule for OS/MVS

OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 a.m., and Sunday from Midnight to 3 a.m. A backup of all the operating systems on the NAS machines and their contents is done once every two weeks at some low activity period over a weekend.

MUSIC Backup Hours

A message will be sent to all users signed on to MUSIC approximately 10 minutes before backups are begun. It will be in the form * * MUSIC SHUT DOWN AT xxxx AM - SCHEDULED BACKUP *. To find out the backup hours while signed on to MUSIC, enter HELP HOURS. The following backup schedule is currently in effect:

Tuesday	3 a.m. (for about 3 hours)	Weekly backup
Wednesday - Saturday	4 a.m. (for about 2 hours)	Daily backup
Saturday	Midnight (for about 2 hours)	Daily backup

VAX Backup Schedule

Incremental backups of both VAX systems are performed Monday through Thursday at 4 p.m. Users do not have to log-off, but any files that are open at the time of the backup will NOT be backed up.

Full backups of both systems are done every Friday beginning at 8 a.m. These generally will take all day to complete. Again, users do not have to log-off, but any files that are open will not be backed up.

A "Stand Alone" backup of the system disk is done the third Tuesday of every month, in the afternoon, just before preventive maintenance. This procedure makes a copy of the system disk that can be used to restore its contents if the disk is completely destroyed. The system will be shut down; watch the system log-on message for specific times and dates.

NOTE: No backups are taken on the weekends. Requests for restoration of files should be made via MAIL to the username OPERATOR. Your file can only be restored if it existed before the last backup was done.

NAS/8043 and NAS/6650 Performance Statistics for May

CPU	SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
8043	VM/SP3	744	0.00	744.00	0.47	743.53	99.9%
8043	MUSIC	744	23.17	720.83	1.64	719.19	99.8%
8043	MVS/JES2	744	0.00	744.00	2.06	741.94	99.7%
8043	COMPLETA	744	0.00	744.00	3.00	741.00	99.6%
6650	MVS/JES2	744	2.25	741.75	10.29	731.46	98.6%
6650	COMPLETEA	360	0.00	360.00	4.83	355.17	98.7%
6650	ADABASA	744	18.25	725.75	17.37	708.38	97.6%

System Uptime = (Production Hrs. Achieved)/(Planned Production Hrs.)

Production Hrs. Achieved = (Planned Production) - (Unplanned Maint.)

Scheduled Operating Hrs. = (Planned Maint.) + (Planned Production)

MUSIC Planned Maintenance Hours include 23.17 Hrs. for system backup.

ADABASA'S Planned Maintenance Hours include 15.67 Hrs. for system backup.

The NAS/8043 CPU achieved 100% uptime. The NAS/7360 DASD achieved 100% uptime.

The NAS/7350 DASD achieved 100% uptime. The NAS/6650 CPU achieved 100% uptime.

The STC 8650 DASD achieved 99.1% uptime.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

NAS/8043 CPU:

Miscellaneous

- | | |
|---|------------|
| 1. Undetermined Causes for Systems Restarts | 1.17 HOURS |
| 2. VM/SP3 System Tuning/Improvements | 1.08 |
| 3. MVS/JES2 System Tuning/Improvements | 1.08 |

TOTAL 3.33 HOURS

GRAND TOTAL FOR NAS/8043 3.33 HOURS

BENCHMARKS

JUNE, 1985

NAS/6650 CPU:

CPU, Tape, and Disk Subsystems (NAS)

1. Upgrade Main Storage to 16 Meg. 2.58 HOURS

DASD Subsystems (STC)

1. 8650 DASD Dual Porting Failure/Fix 6.77 HOURS

Miscellaneous

1. Undetermined Causes for System Restarts 1.67 HOURS

2. ADABASA System Tuning/Improvements 4.28

3. COMPLETA System Failures 2.68

4. MVS/JES2 System Tuning/Improvements 1.87

5. Power Failure in ISB Caused BYMPX O Failure 2.03

TOTAL 12.53 HOURS

GRAND TOTAL FOR NAS/6650 30.88 HOURS

```
* * * * *
*
*      T E C H N I C A L
*      S U P P O R T
*
* * * * *
```

NAS/8043 Program Hit Parade

The following programs were used the most frequently on the NAS/8043 during the month of May.

TOP TEN PROGRAMS IN TERMS OF FREQUENCY OF RUNS

<u>Program</u>	<u>Description</u>	<u>Number of Runs</u>
1. IKFCBL00	VS COBOL Compiler	9981
2. PGM=*.DD	Compiled Program	8268
3. IEWL	Linkage Editor	8181
4. IEBGENER	IBM Utility	8028
5. SCRIPT	Waterloo/SCRIPT	1207
6. IEFBR14	IBM Null Utility	3635
7. SASLPA	SAS	3443
8. LOADER	System Loader	3143
9. IEBPTPGH	IBM List Utility	2964
10. PTPCH	Dataset Lister	2211

TOP TEN PROGRAMS IN TERMS OF CPU SECONDS USED

<u>Program</u>	<u>Description</u>	<u>Number of Runs</u>
1. PGM=*.DD	Compiled Program	97171
2. SASLPA	SAS	82217
3. IKFCBL00	VS COBOL Compiler	16217
4. LOADER	System Loader	14319
5. SCRIPT	Waterloo/SCRIPT	10117
6. SPSS	SPSS-X	5612
7. IEWL	Linkage Editor	4431
8. PTPCH	Dataset Lister	4248
9. IEBGENER	IBM Utility	2681
10. IFOX00	System Assembler	1738

Registration Form for Computing Center Short Courses

Please complete this form and return it AS SOON AS POSSIBLE if you wish to attend any of the short courses listed below. You may also register over the phone by calling 565-2324.

NAME: _____ PHONE: _____

DEPT.: _____

I wish to attend:

Introduction to MUSIC

____ Monday, July 22, 10 a.m. - Noon

____ Tuesday, July 23, 3 - 5 p.m.

____ Wednesday, July 24, 6 - 8 p.m.

Introduction to SAS

____ Thursday, July 25, 3 - 5 p.m.

Introduction to SPSS-X

____ Tuesday, July 23, 10 a.m. - Noon

Introduction to Waterloo/SCRIPT

____ Monday, July 22, 3 - 5 p.m.

Introduction to JCL

____ Tuesday, July 23, 10 a.m. - Noon

Introduction to VAX Utilities and Commands

____ Wednesday, July 24, 9 a.m. - Noon

PLEASE RETURN TO:

Academic Computing Services
The Computing Center
NT Box 13495
North Texas State University
Denton, TX 76203

Get a "Subscription" to *Benchmarks*

Benchmarks is a vital link between the NTSC Computing Center and the users of our facilities. It is important for all users of the computing facilities to maintain a file of these newsletters because they contain materials which will periodically update existing documents as well as information and suggestions on uses of OS/MVS, MUSIC, the VAX 11/780's, the HP-2000, and other resources available to NTSC students and faculty. To facilitate the dispersal of *Benchmarks*, *** **FREE** *** subscriptions are available. To receive yours, send the following information to us either by "snail mail" (the post office or campus mail) or electronically, through the MEMO facility on MUSIC to ID AA06.

Name _____

Mailing Address _____

Name _____

Mailing Address _____

PLEASE GIVE A CAMPUS ADDRESS (NOT BOX) IF POSSIBLE! - It's Cheaper!!

PLEASE RETURN TO:
Academic Computing Services
The Computing Center
NT Box 13495
North Texas State University
Denton, TX 76203